

In The United States Patent And Trademark Office

Appl. No.: 09/975,168 Confirmation No.: 9101
Applicant(s): Weaver et al.
Filed: October 11, 2001
Art Unit: 2633
Examiner: Curs, Nathan M.
Title: CLOSED-LOOP OPTICAL NETWORK SYSTEM
AND AN ASSOCIATED TRANSCIEVER AND METHOD
FOR TRANSMITTINIG A PLURALITY OF OPTICAL SIGNALS

Docket No.: 038190/239642
Customer No.: 00826

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P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF TRANSMITTAL
(PATENT APPLICATION – 37 C.F.R. § 41.37)

1. Transmitted herewith is the REPLY BRIEF in this application, with respect to the Notice of Appeal filed May 11, 2006, the Appeal Brief filed September 11, 2006, and the Examiner's Answer mailed November 14, 2006.
2. Please charge any fee or refund to Deposit Account 16-0605.

Respectfully submitted,



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PATENT

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REPLY BRIEF UNDER 37 CFR § 1.193(b)(1)

This Reply Brief is filed pursuant to 37 CFR §1.193(b)(1) and is filed in response to the Examiner's Answer of November 14, 2006, the Examiner's Answer being in response to an Appeal Brief filed September 11, 2006. This Brief addresses a number of points arising from the Appeal Brief, as well as the Examiner's Answer to the same.

10. Response to Argument.

The Examiner's Answer responded to Applicants arguments in Section 7 of the Appeal Brief in the same order in which those arguments were presented therein. Accordingly, Applicants address the Examiner's position below under the same subsections as those presented in the Appeal Brief.

I. Claims 1-20 are Patentable over Sharma/Kartalopoulos

Initially, Applicants note that the Examiner's Answer suggests that Applicants are trying to "discredit" Kartalopoulos as to its disclosure with respect to single-mode and multimode fiber. To the contrary, however, nowhere do Applicants attempt to question the disclosure of

Kartalopoulos, but instead question the Examiner's interpretation of Kartalopoulos suggesting that it discloses use of multimode fiber in telecommunications systems such as that of Sharma. In this regard, by the Appeal Brief (as well as the explanation below), Applicants have only shown that, properly interpreted, Kartalopoulos does not teach or suggest the use of single-mode fiber in telecommunications systems such as those disclosed by Sharma.

B. Single-Mode Fibers in Telecommunications Systems

As explained in the Appeal Brief, although Sharma does not explicitly define its network bus as being single mode or multimode, Sharma does suggest that its network bus is, in fact, a single mode network bus, in contrast to the multimode network bus of independent Claim 1. As explained, Sharma discloses the use of related network systems being proposed for optical telecommunication, and as is well known to those skilled in the art, due to increased modal dispersion in multimode waveguides, optical telecommunication networks are most typically, if not exclusively, implemented using single mode waveguides.

In response to the foregoing, the Examiner's Answer notes that the introduction to Chapter 3 of Kartalopoulos mentions the following: "Fiber has become the transporting medium of choice for voice, video, and data, particularly for high-speed communications."

Kartalopoulos, page 37. From this introduction, and the fact that Chapter 3 discloses different fiber types including multimode fiber, the Examiner's Answer alleges that "the only logical conclusion is that Kartalopoulos considers the use of multimode fiber as within the field of optical telecommunications." Examiner's Answer, page 13. Applicants disagree. In this regard, merely indicating that fiber may generally be used to transport voice, video and data in an introduction to a chapter explaining the different types of fibers does not, by itself, support the conclusion that Kartalopoulos contemplates use of any of the disclosed types of fibers in any context for the transport of voice, video and data. In fact, Chapter 3 of Kartalopoulos itself discloses limits to the use of the different types of fibers, specifically related to the transport of information (voice, video and data). Thus, introducing a chapter about different types of fibers by explaining that fibers may be used to transport voice, video and data does not support the

Examiner's conclusion that Kartalopoulos teaches or suggests the use of multimode fiber in telecommunications systems such as that of Sharma.

The Examiner's Answer further attempts to interpret Kartalopoulos as disclosing the use of multimode fiber in telecommunications systems by noting a passage of Kartalopoulos explaining that a WDM fiber ring may be implemented over a few tens of kilometers at a speed of 622 Mpbs or lower (drawing a correlation to the use of multimode fiber over distances of up to 40 km at a speed of 100 Mbps). And by further noting that Sharma discloses a WDM fiber ring in the field of telecommunications, the Examiner's Answer concludes that Kartalopoulos "teaches a 'telecommunications' fiber ring like Sharma with multimode-compatible specifications." Examiner's Answer, page 15. Applicants again disagree, but do initially note that by this passage, the Examiner appears to explicitly concede that Sharma discloses a telecommunications system.

The Examiner's Answer alleges that a WDM fiber ring may be implemented with "multimode-compatible" specifications (as in Kartalopoulos), and in a telecommunications system (as in Sharma), therefore concludes that Kartalopoulos contemplates multimode fiber in telecommunications systems (presumably drawing the link by the WDM fiber ring). Such a conclusion, however, presupposes that the aforementioned implementations of WDM fiber rings are requirements. Thus, to properly conclude that Kartalopoulos contemplates a telecommunications WDM fiber ring with multimode-compatible specifications, requires that WDM fiber rings may only be implemented with multi-mode compatible specifications (as in Kartalopoulos). However, as also disclosed by Kartalopoulos, WDM fiber rings may also be implemented at a speed of 1.25 Gb/s or higher, which as also disclosed by Kartalopoulos, is outside the operating limits of multimode fiber (i.e., 100 Mbps). Kartalopoulos, pages 42 and 194 (cited by Examiner). Thus, instead of Kartalopoulos contemplating multimode fiber WDM fiber ring for telecommunications systems, Kartalopoulos could be contemplating a single-mode fiber WDM fiber ring for telecommunications systems. Applicants therefore respectfully submit that the particular "multimode-compatible" specifications of a WDM fiber ring (as in Kartalopoulos) cited in the Examiner's Answer do not, by themselves, support the conclusion

that Kartalopoulos contemplates those same specifications and thus multimode fiber for a telecommunications WDM fiber ring (as in Sharma).

The Examiner's Answer further attempts to dismiss Applicants evidence supporting the argument that the use of multimode fibers in telecommunications applications is contrary to accepted wisdom in the art, by alleging that Applicants have only referenced a "handful" of patents that do not constitute "the totality of the prior art," and that those patents do not nullify Kartalopoulos. Applicants respectfully submit, however, that the Appeal Brief not only cited eight patents supporting the aforementioned argument, but also cited passages of Kartalopoulos suggesting single-mode fiber in telecommunications systems. And as disclosed or suggested by these references, due to increased modal dispersion in multimode waveguides, optical telecommunications systems such as that of Sharma are most typically, if not exclusively, implemented using single mode waveguides

For at least the reasons presented herein, as well as in the Appeal Brief, Applicants again respectfully submit that considering the totality of the prior art, the use of multimode optical fiber in telecommunications systems is contrary to accepted wisdom in the art. And as the Sharma system is disclosed with reference to telecommunications systems, Sharma thereby suggests its network bus is a single-mode network bus, as opposed to a multimode network bus, as in the claimed invention.

C. Combination of Sharma/Kartalopoulos

As explained in the Appeal Brief, and as supported by not only the three patents cited in this same subsection of the Appeal Brief, but also the five patents and Kartalopoulos cited in subsection I.B. of the Appeal Brief, one skilled in the art would not be motivated to modify Sharma to include the multimode fiber of Kartalopoulos. In response, the Examiner's Answer attempts to justify the alleged motivation for the ease of splicing and light coupling of multimode fiber over single-mode fiber by asserting that one skilled in the art would recognize the criticality of proper fiber splices and good light coupling to establish a functional fiber optic system. Even if proper fiber splices and good light coupling are critical to a functional fiber optic system, however, nowhere has the Examiner's Answer alleged that single-mode fiber (as suggested by

the telecommunications system of Sharma) cannot be spliced or coupled into to the same extent as a multimode fiber. The Examiner's alleged motivation is only that it is "easier" to splice and couple light into multimode fiber. And as would be readily understood by those skilled in the art, in various instances (such as in telecommunications systems), the drawbacks of modal dispersion in multimode fiber outweigh the drawback of the "ease" of splicing and coupling light into single-mode fiber; thereby leading to the use of single-mode fiber in those instances, albeit with an arguably more difficult splice and light coupling (taking only for the sake of argument the contrary of the alleged benefit of multimode fiber given in Kartalopoulos).

For at least the foregoing reasons as well as those in the Appeal Brief, Applicants therefore again respectfully submit that independent Claims 1, 7 and 12, and by dependency Claims 2-6, 8-11 and 13-20, are patentably distinct from Sharma and Kartalopoulos, taken individually; and that Sharma and Kartalopoulos cannot properly be combined.

II. Claims 21-26 are Patentable over Sharma/Polczynski/Kartalopoulos

For the reasons given in the Appeal Brief as well as those provided above, Applicants also again respectfully submit that Sharma and Kartalopoulos, taken individually or in any proper combination, do not teach or suggest a closed-loop network system with a multimode network bus for transmitting optical signals. Similarly, Applicants further respectfully submit that Polczynski does not teach or suggest the aforementioned closed-loop network system of independent Claim 21. Applicants therefore respectfully submit that independent Claim 21, and by dependency Claims 22-26, is patentably distinct from Sharma, Polczynski and Kartalopoulos, taken individually or in any proper combination.

CONCLUSION

For at least the foregoing reasons, as well as those presented in the Appeal Brief,
Applicants respectfully request that the rejections be reversed.

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